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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,174	02/25/2002	Vinay Vasant Kulkarni	P8005	5123

24739 7590 11/26/2007

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EXAMINER	
INGBERG, TODD D	
ART UNIT	**PAPER NUMBER**
2193	

MAIL DATE	DELIVERY MODE
11/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/083,174	KULKARNI ET AL.	
	Examiner	Art Unit	
	Todd Ingberg	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1 – 11 have been examined.

Claims 1 and 8 have been amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batch as taught by "Not a Batch Language : A Control Language!", E.H.Bristol, published May 1995 in view the implementation of the methodology of Object Oriented as taught by Object-Oriented Modelling and Simulation of Batch Plants (Wollhaf et al) from November 1995.

Claim 1
Batch teaches a software instance operating on a computer platform including a model framework for specifying a purpose-specific batch programs (Batch, page 2 – object oriented – by definition supports instances and Role of Graphics for framework support also see page 3) comprising: an extensible code library (Wollhaf, OO Batch), an abstraction representing a batch program(Batch, page 5, Figure 3b and page 8 Figure 5); an abstraction representing a batch function of the program(Batch, page 12, operations); an abstraction representing operation of the function (as per above); an abstraction representing a data provider to the function (Operations above the operation often called a getter should be well known) ; and an abstraction representing a context class of the function (Batch, as defined by the meta model provided by Inheritance, see page 2); characterized in that an instantiation process of the models is initiated with appropriate input data parameters input to each abstraction generating appropriate instances of batch functions and function operations wherein the generated instances are executable as part of a run sequence of the purpose-specific batch program (Batch, instantiating an object based on the class structure as taught on page 2 and the variables of the object as defined on page 7 and Wollhaf, Chemical plants etc)). Batch teaches modeling batch programs using an Object Oriented Methodology. Wollhaf teaches the Object-Oriented modeling for a specific purpose of batch

plants and the implementation of modeling (code library required to perform OO modeling) and the implementation of simulation. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Batch and Wollhaf, because Object technology provides a high degree of reuse with extensible code libraries.

Claim 3
The model framework of claim 1 wherein instantiation creates user-instance functions that are operationally linked and together define a user-instance of batch program. Interpreted to be the user defines object by interacting with the object oriented framework of claim 1 – intended use of Batch)

Claim 4
The model framework of claim 3 wherein code required to generate the user instance functions defining the program is automatically generated by the model as a result of data input and subsequent instantiation. (Interpreted to be the instantiation of an object is based on the class structure as per claim 1).

Claim 5
The model framework of claim 1 wherein the data provider obtains its data from a database by query.
Interpretation
A file system can be interpreted as a database. The ability to use messages to access data meets the limitations in the broadest reasonable interpretation (Batch, page 3 Table 1 – Messages/Calls – Data Access).

Claim 6
The model framework of claim 1 wherein one batch function indicates if memory management should be provided. Instantiating an object performs an allocation of memory and meets the limitations in the broadest reasonable interpretation.

Claim 7
The model framework of claim 1 wherein the class encapsulates restart information and information passed between different operations. (Batch, page 3, bullet 3 – On, Off etc).

Claim 8
Batch anticipates a method for developing an executable batch program through model instantiation (Batch, page 2, Introduction and Potential for Objects in Control) comprising steps of
(a) providing an executable model abstraction (Batch, page 3 – bullet items) including program (Problem being solved – Production system in article), function (Batch, method, page 3), class (Batch, page 3 – top), data provider (Batch, message page 3), and operation objects (Batch, methods as per above);
(b) inputting data into the model abstraction, the input data defining a user instance class of batch program (Bullet items as per above to model behaviors);

(c) instantiating the model abstraction (Batch, page 3, Process middle of page);
(d) generating code within the model abstraction, the code defining user instances of batch functions including operations and execution orders (Batch, inheritance model of class classes as per page 2); and
(e) compiling the generated code to build the user instance batch program(Batch, page 10, Translation and pages 13 – 14 for support of tasks).

Claim 9
The method of claim 8 wherein the model comprises a meta model framework.
Class inheritance is the meta model (Batch, page 2, class structure and inheritance)

Claim 11
The method of claim 8 wherein in steps (d) and (e) are automated. (Batch, Abstract – the purpose of the language).

Claim Rejections - 35 USC § 103

3. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batch as applied to claims 1 and 8 above in view of UML as taught by Integrating UML Diagrams for Production Control Systems by Hans J. Kohler et al, ACM, 2000 and by Object-Oriented Modelling and Simulation of Batch Plants (Wollhaf et al) from November 1995.

Claim 2
The model framework of claim 1 wherein modeling language is unified modeling language.

Claim 10
The method of claim 8 wherein instep (a) the code is UML language.

Rejection for Claims 2 and 10

Batch teaches the implementation of a meta model for implementing object oriented framework in a Batch environment (Batch, page 14). However, Batch does not limit the implementation to the use of Unified Modeling Language. It is UML who teaches UML for production control systems (UML, Abstract). Wollhauf teaches simulation and modeling of batch plants. Therefore, it would have been obvious to one of ordinary skill in the art to combine

the teachings of Batch, UML and Wollhauf, because the ability to produce modeling with UML would provide a model using a commonly used modeling language thus reduce employee learning and save time and money.

Response to Arguments

4. Applicant's arguments filed September 7, 2007 have been fully considered but they are not persuasive.

Applicant's Remarks

This response is to the official action mailed in the above referenced case on June 18, 2007. Claims 1-11 are standing for examination. Claims 1, and 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batch as taught by "Not a Batch Language: A Control Language!", E.H. Bristol, published May 1995, in view of the implementation of the methodology of Object Oriented as taught by Object- Oriented Modelling and Simulation of Batch Plants (Wollhaf et al.) from November 1955, hereinafter Wollhaf.

In response to the Examiner's rejections and objections, applicant herein presents extensive arguments clearly showing where the art of Batch and Wolhaf fail to teach all of the limitations of applicant's claims, as amended.

Applicant's Argument

Applicant's claims clearly recite that the above models (abstractions) are instantiated with appropriate input data parameters generating appropriate instances of batch functions arid function operations wherein the generated instances are automatically executable as part of a run sequence of the purpose-specific batch program. In applicant's invention, as claimed, a user may

simply initiate a model abstraction of the program and then leave it up to the frame work and code generators to automatically implement a correct batch program.

Examiner's Response

The rejection is a combination of Not a Batch Language: A Control Language in view implementing the methodology using Object Technology in the Batch environment as taught by Object-Oriented Modeling and Simulation of Batch Plants. Object Modeling is an abstraction. And Object models by definition. Bristol explicitly teaches the language for generating batch controls. Applicant's argument does not indicate a limitation that is not taught by the combination.

Applicant's Argument

A key aspect of applicant's innovation is automatic generation of executable, batch programs from their declarative specifications in the form of model. Our invention views a batch program to comprise of a 'fixed part' and a 'variable part'. The fixed part is common for all batch programs and the variable part is specific to each batch program. Applicant's invention, as claimed, generates the variable parts is it's specifications and encapsulates the fixed part in the form era framework with placeholders where the variable parts can be plugged in. Our framework also ensures that on failure a batch program will restart automatically, from a consistent state, with minimal loss of computation. The framework also provides automation support for management of resources such as memory.

Examiner's Response

The fixed and variable parts the applicant are arguing are not explicitly claimed. But the Applicant should review the concept in object technology of software design patterns (Abstract

of Lance Smith)/ This is typical reuse of classes that perform a specific function (basic definition of a pattern to one of ordinary skill). The plug in aspect is called inheritance and is also by definition part of object technology. Applicant's statements on restart are promising but the current limitation more reflect data than perform a function in the claims.

Applicant's Argument

Applicant points out that Batch fails to teach said code generators and automation for implementing a needed batch program, as claimed. Batch simply teaches a method of executing static batch programs including a plurality of procedure pages consisting of objects and definitions for running and controlling complex auto- startup in a multi-unit production plant while utilizing a uniform control language. Applicant argues that Batch is actually utilizing a control language controlling how the static batch programs execute control over the plant. Batch, either singly or in combination with Wollhaf, fail to teach that data parameters are input into abstractions represent/zig batch functions thereby generating appropriate instances of batch functions and function operations wherein the generated instances are executable as part of a run sequence of the purpose-specific batch program: Applicant respectfully requests the Examiner specifically point out in Batch or Wollhaf where said limitation is taught.

Examiner's Response

This argument is considered piecemeal and fails to acknowledge the inherent aspect of messaging in object technology. Applicant should review configurable objects in the art also prior to attempting to claim data parameters are input. the scope of the claims is met by messaging, which is inherent in object technology. the combination teaches the implementation of batch control language implemented in object technology.

Applicant's Argument

The art of Batch clearly teaches a process control paradigm called 'batch control' that is typically seen in chemical plants, manufacturing plants etc. Applicant's invention has nothing to do with industrial process control. Bristol teaches (pg. 8) The Language models a process hierarchically in terms of its Operations/Objects, modeling the process divisions: the Styrene Plant Operation and the Furnace, Reactor. Heat Recovery, Separator, and Feed Tankage Sub Operations. Each Operation is organized into Pages for modeling distinct control functionalities. The example shows several of these Pages H mostly Procedures Pages, describing active control procedures. In the art of Batch, the framework is the plant operations, therefore, one could not apply the software of Batch to any other operation without extensive manual programming. Applicant's invention provides a high level mechanism for specifying application-specific variable parts from which their implementations can be, automatically generated,

Examiner's Response

Object oriented technology with it's inherent aspects of reuse meet the limitations. The arguments appear piecemeal.

Applicant's Argument

Applicant's claim 1 provides means for generating a batch program through a plurality of abstractions, each representing a batch program; a batch function of the program; operation of the function; a data provider to the function; and an abstraction representing a context class of the function. Applicant's invention also includes a code library which is not found in the art of Batch or Wollhaf as both references fail to teach actually generating and implementing batch programs or code as claimed.

Examiner's Response

Object technology inherently supports abstractions and an object by definition is the attributes (date/variables/fields) and the methods to perform operations on the attributes. the argument for context is covered by the tracking of state changes. Object technology has many features and advantages as a paradigm. The reuse of code is a use of a code library. The combination is two references the use of object technology in a batch environment and a batch control language.

Disposition

The examiner met the present claim language in the broadest reasonable interpretation in view of the claims. Currently, the most promising argument involves what is currently best described as data in the restart. Also, what is being restarted is not clearly claimed. The current claim limitations are met by the combination of references. The inherent aspects of object technology is not fully reflected in the arguments.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

UML Distilled Applying the Standard Object Modeling Language, Martin Fowler, Whole Manual , 1997 – Teaches the inherent aspects of implementing solutions in UML.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Todd Ingberg whose telephone number is (571) 272-3723. The examiner can normally be reached on during the work week..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Todd Ingberg
Primary Examiner
Art Unit 2193

TI